

TABLE 1 The mean (95% CI) HRQoL and satisfaction scores before and after surgery

Robotic procedure	PCS-8		MCS-8		CSQ-8 (after)
	Before	After	Before	After	
Radical prostatectomy	56.9 (1.6)	51.7 (2.1)*	46.9 (2.0)	53.9 (2.0)*	30.4 (0.4)
Radical cystectomy	47.9 (6.4)	45.5 (4.2)	43.2 (4.8)	49.6 (3.4)	30.0 (0.4)
Pyeloplasty	50.8 (3.6)	50.0 (2.7)	49.7 (6.0)	59.1 (0.9)*	31.0 (0.7)
Nephrectomy (± ureter)	53.7 (8.0)	49.3 (1.2)	47.7 (4.9)	55.8 (4.7)	31.2 (1.1)
Live-donor nephrectomy	59.6 (2.4)	58.0 (3.4)	52.4 (7.7)	51.2 (1.5)	30.3 (1.3)
Colposuspension	48.9 (2.4)	49.4 (–)	56.3 (2.1)	50.8 (–)	31.0 (–)
Overall mean	53.7 (2.1)	50.2 (1.7)*	47.1 (1.9)	53.6 (1.5)*	30.4 (0.3)

*Statistically significant $P < 0.01$ (Wilcoxon two sample nonparametric test).

associated with higher morbidity. The MCS8 scores improved from 43.93 to 51.54 ($P < 0.001$) [8].

CONCLUSIONS

Despite initial scepticism, patient interest in robotic surgery is growing steadily. Patient perception of a new technology is a powerful component of its scientific evaluation. Patients appear to like robotic surgery and have high HRQoL and satisfaction levels. Their request for better access to robotics and the desire for tailored information cannot be ignored. The only impediment is the high initial cost, which can be offset by a shorter hospital stay and better HRQoL.

ACKNOWLEDGEMENTS

Guy's and St. Thomas' Charity, British Urological Foundation and Prostate UK. SF8 License no. F1-121304-20845.

CONFLICT OF INTEREST

None declared.

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PATHOLOGICAL DEFINITION AND DIFFICULTIES IN ASSESSING POSITIVE MARGINS IN RADICAL PROSTATECTOMY SPECIMENS

Rodolfo Montironi, Liang Cheng*, Roberta Mazzucchelli and Antonio Lopez-Beltran[†] – Section of Pathological Anatomy, Polytechnic University of the Marche Region, School of Medicine, United Hospitals, Ancona, Italy, *Department of Pathology and Laboratory Medicine, Indiana University School of Medicine, Indianapolis, IN, USA and [†]Department of Pathology, University of Cordoba Faculty of Medicine, Cordoba, Spain

Accepted for publication 3 July 2008

INTRODUCTION

This issue of the *BJU Int* contains a well-conducted clinical study by Bong *et al.* [1] on positive margins (PMs) in radical prostatectomy (RP) specimens and their use for predicting biochemical recurrence. In particular, the study gives further support to the notion that patients with PMs have a

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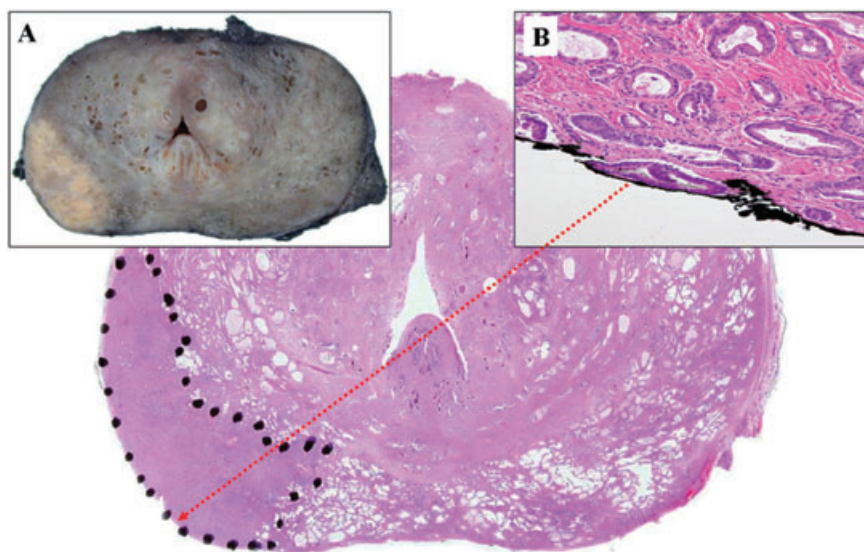
Correspondence: Prokar Dasgupta, Department of Urology, Guy's Hospital, London SE1 9RT, UK.
e-mail: prokarurol@gmail.com

Abbreviations: HRQoL, health-related quality of life; SF, Short Form; (P)(M)CS, (physical) (mental) component score; CSQ, client satisfaction questionnaire.

significantly greater risk of progression than those with negative margins, and that multifocal and extensive PMs are associated with a greater risk of progression than solitary and focally positive margins, respectively [2–6].

The study by Bong *et al.* specifically refers to the need for the adoption of a common

FIG. 1. Whole-mount histological section with intraprostatic PM posterolaterally after bilateral nerve-sparing RP. The dotted area is the tumour. Insert A is the macroscopic appearance of the prostate slice. The yellowish area is the cancer. This corresponds the dotted area in the whole-mount section. Insert B is the microscopic appearance of the tumour touching the inked margin (i.e. a PM).



approach in evaluating prognostic features in RP specimens [7–11], including the pathological definition and assessment of margin status.

PATHOLOGICAL DEFINITION AND ASSESSMENT OF MARGIN STATUS

The pathological definition of PMs of resection is: 'tumour extending to the inked surface of the prostatectomy specimen which the surgeon has cut across' [3,4]. The external surface of the prostate should be covered with coloured ink. If the specimen is not covered with ink, then the pathologist cannot determine if the tumour seen at the edge of the tissue section is a true PM or an artefact of sectioning. With whole-mount sections, the left and right aspects of the prostate are painted with different coloured ink. Some authors prefer the India-ink to the two-colour procedure because the black coloured margins are more easily identified when the sections are examined under the microscope [6].

DIFFICULTIES IN ASSESSING RESECTION MARGINS

The difficulty with the practical application of this definition is that the prostate is surrounded by vital structures such as the

urogenital diaphragm distally, pelvic side-wall laterally, rectum posteriorly and bladder neck superiorly, limiting the radical removal of the prostate. Consequently, in many sites the RP specimen is surrounded by <1 mm of periprostatic soft tissue. As tumour is not actually cut across and at the ink, close margins (<0.1 mm) should not be designated as PMs, as they are not associated with tumour that would be left within the patient or a greater risk of progression after RP [3,12]. Even though there might be only a fraction of a millimetre of uninvolved tissue separating tumour from the ink, pathologists should not use terms such as 'the tumour microscopically approaches the margin' or 'the tumour is close to the margin of resection'. Rather, these margins should simply be designated as negative margins of resection.

The other area in which the definition of a PM can vary is at the apex. Depending whether the margin is a shave or perpendicular section, one could either diagnose incision into the gland with a PM, or organ-confined disease with negative margins, respectively. Even when the apex is handled as a perpendicular section, there can be variations in a pathologist's interpretation as to whether there is a PM due to incision into the gland. The histological boundaries of the prostate in the region of the apex are extremely vague, with benign glands admixed with skeletal

muscle. When tumour is seen extending to the inked edge of the tissue at the apex it can be subjective as to whether the pathologist thinks that the tumour is still within the prostate or not. At the apex, the approach followed by some pathologists is that if tumour is seen extending to the inked edge of the prostate in an area where benign prostate glands are not cut across, a diagnosis is made of a PM in an area of extraprostatic extension. An approach similar to this was discussed for the basal or bladder neck margin during the 1999 WHO meeting in Paris [3].

The other area where pathologists must be careful is in areas with artefactual disruption of the prostate by handling of the prostate where ink could seep into the gland, possibly resulting in a false PM.

NORMAL PROSTATE TISSUE AT THE RESECTION MARGIN LEVEL

The pathology report should indicate the presence of normal prostate tissue at the resection margin level. This might help the urologist to explain why the serum PSA level in patients with such a feature remains detectable after RP. In fact, the serum PSA level, even though very low, is not linked to tumour recurrence and persistence, but to incomplete resection of the prostate [3,13].

CAUSES FOR PMs

PMs can result from an inability to widely excise extraprostatic extension of tumour. One of the most frequent sites of extraprostatic extension is posterolaterally in the region of the neurovascular bundle. In an attempt to preserve potency and spare the neurovascular bundle, there is the potential of a PM that otherwise would have been avoided with wide resection of the neurovascular bundle (Fig. 1). The inability to widely excise tumour showing extraprostatic extension more commonly results from an attempt to preserve adjacent 'vital structures'. In many cases, tumour extends to the ink in an area where resection of additional tissue would result in unacceptable morbidity. In many such cases, there is only focal extraprostatic tumour where it appears that if the urologist could have resected just a few more millimetres of tissue exterior to the tumour, the margins would have been negative. However, given the close proximity of vital

structures, such as the rectum, this might not be technically feasible [3,4,6].

A minority of cases show widespread PMs with extensive extraprostatic tumour. These patients would have PMs regardless of the surgical technique used. There has been a decrease in such cases as a result of greater selectivity as to who is a candidate for RP.

The final cause of PMs on resection is the artefactual PM; because there is such a scant amount of flimsy connective tissue surrounding the prostate, which might be easily disrupted when handling the specimen during or after RP, tumour might be visible at the inked edge of the gland microscopically, yet there was additional soft tissue surrounding this area when the gland was removed [3].

One cause of a PM on resection is transection of intraprostatic tumour, resulting in stage T2+ (capsular incision) [3,6]. This stage denotes that elsewhere the tumour is organ-confined, yet one cannot determine whether there is extraprostatic extension in the region of incision into the prostate, as the edge of the prostate has been left in the patient.

CONCLUSIONS

A standardized approach to evaluating surgical margin status in RP specimens is of paramount importance for clinicians to understand the difficulties in assessing PMs and their causes, and to accurately predict the prognosis.

CONFLICT OF INTEREST

None declared.

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Correspondence: Rodolfo Montironi, Pathological Anatomy, Polytechnic University of the Marche Region, School of Medicine, United Hospitals, Via Conca 71, I-60126 Torrette, Ancona, Italy.
e-mail: r.montironi@univpm.it

Abbreviations: PM, positive margin; RP, radical prostatectomy.